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[redacted] 25X1

6 June 1958

RD-103
T.O. 10 JCV

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NOT RELEASABLE TO FOREIGN NATIONALS

SDN 8-5196/02-1

In reply refer to:
58H-4060/4079

[redacted] 25X1

Subject: Contract RD-103 Proposal;
Additional Work to be Performed

Gentlemen:

[redacted] is pleased to submit in accordance with a verbal request from your technical representative a firm proposal covering the Statement of Work set forth in Exhibit "A" attached hereto. The technical approach which the Contractor will use in completing this work is described in Exhibit "C" attached hereto. 25X1

Any contract resulting from this proposal will be considered as part of basic contract RD-103 and all of the Terms and Conditions of that contract shall apply thereto.

The Estimated CPFF for this work, set forth in Exhibit "B", may be considered firm for a period of 60 days for the purpose of negotiating the definitive Task Order.

Very truly yours,

[redacted] 25X1

Attachments
Exh. "A" - Statement of Work
Exh. "B" - Cost Breakdown
Exh. "C" - Technical Discussion
Exh. "D" - Delivery Schedule

DOC 1 REV DATE 7 APR 1980 BY 064540
ORIG COMP 056 OPI 56 TYPE 01
ORIG CLASS S PAGES 9 REV CLASS C
JUST 22 NEXT REV 2010 AUTH: HR 10-5

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EXHIBIT "A"
58H-4060/4079
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Page 1 of 1

STATEMENT OF WORK

Item 1. Fabricate 10 RS-16A field units.

Item 1A. RS-16A product improvement.

Item 2. Engineering drawings.

Item 3. Progress report covering Items 1 and 1A.

Item 4. Design RS-16A battery chargers.

Item 4A. Fabricate 16 ea RS-16A battery chargers.

Item 5. Engineering drawings covering Item 4.

Item 6. Progress reports covering Items 4 and 4A.

Item 7. Incorporation of redundancy feature in the AS-5 system being developed under Task Order 5.

NOTE: Contractor recommends that Item 7 be added to Task Order 5.

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EXHIBIT "B"
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Page 1

Estimated Cost-Plus-Fixed-Fee Summary of the Additional Work on Contract RD-103

ITEMS	DESCRIPTION	TOTAL ESTIMATED COST	FIXED FEE @ 8%	TOTAL ESTIMATED CPFF
1,2,3	Fabrication & Drawings for Ten RS-16A Communication Sets			$105,070.00
1A	Redesign of Oscillator and Driver			7,862.00
4,5,6	Design & Development of RS-16A Battery Charger			3,765.00
4A	Fabrication of (16) RS-16A Battery Chargers			2,034.00
7	Addition of Redundancy Features into AS-5			47,515.00
	TOTAL			$166,246.00

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Estimated Cost-Plus-Fixed-Fee Breakdown - Items 1, 2 and 3

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Total Estimated CPFF	$105,070.00

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EXHIBIT "B"
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Page 3

Estimated Cost-Plus-Fixed-Fee Breakdown - Item 1A

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Total Estimated CPFF	$ 7,862.00

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EXHIBIT "C"
58H-4060/4079
6 June 1958
Page 1 of10

TECHNICAL DISCUSSION

FABRICATION OF RS-16B FIELD UNITS

ITEMS 1-3

INTRODUCTION

[redacted] proposes to construct RS-16A Field Units as furnished under Task 1 of Contract RD-103, except for the design changes listed below. These changes are restricted to those assemblies with whichdifficulty has been experienced in existing models. The areas where modifications will be made are: coder, battery pack, and case design. 25X1

Coder

Modification to the present coder will include the substitution of a rigid stainless steel bottom plate for the aluminum plate now employed; the use of superior bearing materials; a change in the mounting of the idler gear to remove backlash from the step-up gear train; and improvement of the tape-spool drive system. In addition, a general study of the materials employed in the coder will be made to improve the wear characteristic of the coder, with special attention to the trigger and escapement mechanism.

Battery Pack

Two design changes are proposed for the battery pack: First, the ampere-hour capacity of the battery pack will be increased; and secondly, the nominal operating voltage will be reduced from fourteen to twelve volts.

The battery pack will be redesigned to incorporate a four to five Ampere-hour nickel-cadmium cell. Increasing the capacity of the battery will insure at least twenty transmissions and listening periods before re-charging is necessary. The volume of the new pack will be approximately twice that of the present unit.

Operational requirements dictate that the nominal supply voltage be reduced to twelve volts. The new battery pack will incorporate this change which will also require that both the high voltage and low voltage power supplies be specified for operation on a twelve-volt design center voltage.

The new battery pack will probably operate satisfactorily with existing RS-16A units. While the existing RS-16A units operate satisfactorily from a twelve volt source, they do so with lower RF power output. The proposed Field Units will also be capable of operation from existing 14 volt battery

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packs with no deterioration in performance.

Case Design

The top plate and bottom pan will be increased by approximately 1/2 inch in each dimension to remove the interference problem experienced when installing the bottom pan.

General

It is anticipated that this work will constitute a new Task Order under Contract RD-103. Monthly Progress Reports will be submitted, but no other reports will be furnished. Engineering sketches will be submitted only for changes from the RS-16A developed under Task Order 1 of Contract RD-103.

RS-16B PRODUCT IMPROVEMENT

The design changes proposed below are in addition to those included in the cost estimate for fabrication of RS-16A Field Units. The addition of these design changes is intended to improve what are considered to be potential sources of difficulty and to upgrade the existing design to incorporate recent advances in the component field. Redesign will precede fabrication of the Field Units and will be incorporated into these equipments at no increase in construction costs.

Contractor proposes to increase the scope of the RS-16A fabrication program to include the design and construction of a wholly new assembly for providing the functions now found in the High Frequency Oscillator and Buffer-Driver chasis. In the present Field Units extensive mechanical fitting is required to install properly the two assemblies so that the switching shaft common to both is properly fitted. By combining what is now two separate assemblies into a single mechanical unit, this difficulty will be removed and a more complete interchangeability of assemblies between RS-16A units will be effected.

Electrical revisions include the replacement of the special crystals now employed by standard CR-27 crystals operating in conventional 75°C crystal ovens. This will necessitate the addition of a separate oscillator-doubler circuit on the high frequency band. These changes should remove the difficulties encountered in procurement of crystals experienced in the past, and improve performance as well as convenience at the higher operating frequencies.

The new unit will be constructed on an aluminum extrusion for strength, and will contain a switch detent mechanism for positive alignment of the switch sections without reliance on accurate positioning by the switching linkage from the power amplifier.

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Contractor further proposes to update the design of the present low voltage power supply by the use of more recently developed transistors and the inclusion of a Zener diode for regulation of the bias voltage. The sequence timer now employed may also be redesigned to incorporate etched-board switching circuits, resulting in a smaller timer of the same high reliability.

It is anticipated that this Product Improvement will constitute part of the Task Order for fabrication of RS-16A Field Units. The same provisions for reports and drawings will apply.

BATTERY CHARGER FOR RS-16A

ITEMS 4-6

[redacted] proposes to design and fabricate models of a regulated battery charger for fixed-station employment with RS-16A battery packs. This charger will operate from nominal 110 or 220 volt, 45 to 65 cps sources, and will supply a maximum charging current of 300 ma. A choice of two output voltages will be available to accomodate either the 14 volt battery pack employed with existing RS-16A models, or the 12 volt system of proposed ones.

This battery charger may remain connected to the battery pack for extended periods to maintain the pack in the fully charged condition. A transistor regulator circuit will be incorporated into the charger to prevent overcharging. Use of this regulated battery charger should add materially to the service life of nickel-cadmium battery packs by preventing charging at excessive rates, or overcharging to the point of gassing. This charger will be designed to permit continual trickle charging of the battery packs, without attention to the charger or battery packs themselves, over a period of years. It is well established that maintenance of full charge is the best assurance of extended battery life.

It is anticipated that this work will constitute a separate Task Order under Contract RD-103. Due to the short term of the program, no interim reports other than monthly letter reports will be submitted. A Final Report including informal operating instructions will be provided. Engineering drawings and sketches will also be provided, but only to the extent required for fabrication of the models herein proposed.

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EXHIBIT "D"
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6 June 1958

DELIVERY SCHEDULE

Item 1. Ten months after receipt of Task Order.

Item 1A. Concurrent with Item 1.

Item 2. Concurrent with Item 1.

Item 3. Monthly - fifteen days after period being reported on.

Item 4. Completed four months after receipt of contractual coverage.

Item 4A. Six (6) models sixty days after completion of Item 4. Remaining ten (10) models one hundred twenty days after completion of Item 4.

Item 5. Thirty days after completion of Item 4.

Item 6. Monthly - fifteen days after period being reported on.

Item 7. The AS-5 system is now scheduled for delivery 28 March 1959. The redundancy feature will be incorporated into the system and it is estimated that this effort will delay the delivery of the AS-5 system thirty days.

NOTE:

(a) The delivery schedule for Items 1-3 is contingent upon 805 overtime hours being expended.

(b) The delivery schedule for Items 4-6 is contingent upon 40 overtime hours being expended.

(c) The delivery schedule for Item 7 is contingent upon 306 overtime hours being expended.

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